

# Priming Effects of Violence on Infrahumanization

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Two experiments examine whether exposure to generic violence can display infrahumanization towards out-groups. In Study 1, participants had to solve a lexical decision task after viewing animal or human violent scenes. In Study 2, participants were exposed to either human violent or human suffering pictures before doing a lexical decision task. In both studies, the infrahumanization bias appeared after viewing the human violent pictures but not in the other experimental conditions. These two experiments support the idea of contextual dependency of infrahumanization, and suggest that violence can prime an infrahuman perception of the out-group. Theoretical implications for infrahumanization and potential underlying mechanisms are discussed.

**KEYWORDS** contextual cues, infrahumanization, priming effects, secondary emotions, violence

DEHUMANIZATION and violence are two related phenomena. Empirical evidence supports the idea that dehumanization increases aggressive behaviors towards out-groups, and triggers moral exclusion. This process facilitates the feelings of having no obligation to apply moral human standards to out-groups (Bar-Tal, 1990; Kelman, 1973; Opatow, 1990). Research has also shown that perceiving other persons as humans activates empathic reactions that would make it difficult to mistreat them (Bandura, 1990).

However, if a person dehumanizes the others, self-sanctions disappear, and he/she can mistreat them without suffering from guilt feelings.

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#### **Author's note**

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Many questions remain unanswered regarding the relationship between dehumanization and violence. For example, can dehumanization be triggered as a consequence of a mere violent reminder in the environment even when this stimulus does not have a direct connection with the out-group, or does the out-group have to be violent in order to be dehumanized? This question was partially addressed by the 'weapons effect' at the interpersonal level. In the presence of a gun (Berkowitz & LePage, 1967) or its representation (Leyens & Parke, 1975), people became especially aggressive towards other people who found themselves in the same place. The present research is concerned with this question at an intergroup level, and focuses on a particular form of dehumanization: the infrahumanization process (Leyens et al., 2000, 2001).

Specifically, we are interested in verifying whether exposure to violent scenes can elicit infrahumanization towards an out-group that is not directly related to this violence. Stated otherwise, we want to see whether infrahumanization can be triggered by contextual violent cues.

### **Infrahumanization processes**

Infrahumanization is defined as a relative difference in attributing human characteristics to an in-group and an out-group, resulting in the perception of this out-group as less fully human than the in-group. It is often operationalized as attributing more positive and negative uniquely human characteristics to the in-group than to the out-group. Uniquely human, or secondary, emotions (e.g. love, sorrow) are one of these exclusively human characteristics and contrast with non-uniquely human, or primary, emotions (e.g. happiness, sadness). Uniquely human emotions are particularly interesting because their attribution is not as influenced by norms of social desirability as the attribution of other human characteristics, such as language or intelligence. The central argument of infrahumanization theory asserts that people more strongly associate secondary emotions with their own group than with out-groups. This hypothesis has been empirically supported in

several studies, with different methodological strategies, different groups, and a wide variety of emotions (for reviews, see Demoulin, Rodríguez-Torres et al., 2004; Leyens et al., 2000; Leyens, Demoulin, Vaes, Gaunt, & Paladino, 2007).

Infrahumanization is one way of dehumanizing a group and it deserves attention for at least three reasons. First, it takes place in a subtle way, outside of the voluntary control of individuals. Second, infrahumanization cannot be explained in terms of in-group favoritism, since it occurs independently of the valence of secondary emotions. The third reason is that infrahumanization is not restricted to extreme forms of discrimination, such as explicit intergroup conflicts, but instead transpires in everyday intergroup interactions (Vaes, Paladino, Castelli, Leyens, & Giovanazzi, 2003). Indeed, it is a bias through which the in-group is ascribed relatively more humanness than the out-group. As such, this bias does not necessarily imply likening the out-group to animals (but see Viki et al., 2006), or with objects (but see Harris & Fiske, 2006).

Contrary to other forms of dehumanization, conflict is not a necessary condition for the occurrence of infrahumanization (Leyens et al., 2007). However, a conflicting or violent relationship between the in-group and the out-group may increase the infrahumanization bias. For instance, Cortes (2005) found that Polish people were infrahumanized by French-speaking Belgians when they were presented as competitors on the labor market. Infrahumanization may also be exhibited towards victims of a previous massacre. In a series of experiments conducted by Castano and Giner-Sorolla (2006), aliens, Amerindians or Aborigines were more infrahumanized when participants believed that their in-group was responsible for the death of the out-group members. According to this research, infrahumanization is not only the cause but also the consequence of violence. Specifically, infrahumanization somehow justifies the in-group's cruel actions.

Castano and Giner-Sorolla's (2006) research has revealed that in-group violence perpetuated to an out-group changes the perception of that out-group's humanity. However, it is still not known whether violence by itself can affect

infrahumanization, especially when this violence is not directly related to the in-group or the out-group. In other words, is the exposure to violence by itself able to trigger infrahumanization towards the out-group, even when the out-group is not implicated in the violent act?

### The role of violence

Even though no research to date has shown that generic violence cues can trigger an infrahumanization process, at least two lines of research can give us some insight on why this might happen. The first sustains that violent stimuli in general may trigger denigratory evaluations of others because concepts such as hostility and threat become more accessible (Bargh, Chen, & Burrows, 1996). For over 30 years research has shown that exposure to violent behavior not only encourages the repetition of the same kind of behavior (Anderson et al., 2003; Bandura, 1983; Berkowitz, 1973), it also influences the interpretation of ambiguous stimuli giving them a more negative connotation (Bargh & Pietromonaco, 1982), increases the estimated frequency of aggressive and antisocial events in the social world and enables people to believe that violence or aggression may be acceptable in certain situations (Berkowitz, 1984).

Recently, Otten and Stapel (2007) extended these findings to an inter-group context. Adapting the classic paradigm of Srull and Wyer (1979), participants were primed with generic violent words and asked to judge the ambiguous behavior of an in-group or an out-group member. While the out-group behaviors were judged more aggressively (even when aggression was not part of the out-group's stereotype), the same behavior performed by an in-group member did not change as a function of the prime. Hence, priming generic violence affects the evaluation of the out-group but not that of the in-group, making perceptions of the former more aggressive, threatening and hostile. Given that threat perceptions have shown to increase the infrahumanization bias, it becomes likely that scenes that are meant to be perceived as violent will elicit an infrahumanization process

towards out-groups in general, even if these out-groups are not directly related to the violence in the scenes.

The second line of reasoning, instead of emphasizing the potential threat that could come from the out-group, focuses on concerns that regard the in-group. Any kind of human violence being an immoral behavior poses a moral question. Such considerations are most apparent when our in-group is directly involved in or responsible for the violent behavior. In these circumstances people often use strategies of moral disengagement in order to maintain their psychological equanimity (e.g. Bandura, 1990; Castano, 2008). At the same time, morality has been shown to be a fundamental dimension in shaping one's social identity. Leach, Ellemers, and Barreto (2007) showed it to be the most important dimension over and above considerations in terms of competence and warmth when evaluating the in-group positively. Moreover, morality is a uniquely human characteristic that is often cited as an essential aspect of what it means to be a human being (Haslam, 2006; Leyens et al., 2000). From this perspective, when people link generic violent cues to the in-group, such scenes potentially threaten the moral image of the in-group. Given that morality is a uniquely human characteristic, such a threat may motivate people to restore or ascertain that their in-group is uniquely human.

These explanations are not mutually exclusive and can easily be complementary reactions to exposure to violence. Important for the purpose of the present article is that both processes sustain the prediction that generic violence cues can facilitate an infrahumanization process even if the violence is not directly related to members of the in-group or of the out-group. However, results could be informative on which of these two processes is driving the infrahumanization effect. Following the violence-triggers-threat explanation, the infrahumanization effect should be mainly caused by the denial of humanity to the out-group. The morality hypothesis, instead, would predict that the relative difference between the in-group and the out-group is the result of increased attribution of humanness to the in-group.

## The present research

In order to verify that the exposure to violent contexts affects the infrahumanization of out-groups, we carried out two experiments. We expected that the exposure to scenes of generic human violence that is not directly related to the in-group or to the out-group would be sufficient to trigger the infrahumanization effect. In both experiments, an out-group was staged for which pilot testing showed that this out-group was not infrahumanized in a neutral condition. As such, we expected that secondary but not primary emotions would be recognized more easily after an in-group compared to an out-group prime only when participants were previously exposed to scenes of generic human violence in which neither the in-group nor the out-group were directly involved. In addition and in a first attempt to disentangle between the two processes that could explain why generic violence leads to infrahumanization, the expected infrahumanization effect could be driven by two different tendencies. The violence-triggers-threat explanation predicts exposure to violence should inhibit recognition of secondary emotions when preceded by an out-group prime, because generic violence makes the out-group more threatening, making human associations less likely. The morality hypothesis, however, predicts faster recognition of secondary emotions when participants are exposed to violence and secondary emotion words are preceded by an in-group prime. Indeed, following this hypothesis, the infrahumanization process should mainly be driven by in-group related humanity concerns that motivate people to restore the humanity of the in-group.

To date, infrahumanization theory has established a clear distinction between positive and negative secondary emotions. For infrahumanization to occur, the theory assumes that a stronger association between uniquely human emotions, both positive and negative, and the in-group compared to the out-group should exist. Otherwise, if only positive secondary emotions were preferentially associated with the in-group, the data pattern could be interpreted as a traditional type of in-group favoritism.

In relation to violence, there are at least two different categories of undesirable uniquely human emotions: those related to *suffering*, such as sorrow, grief and despondency, and those that can be referred to as *evil*, such as hate, rancor or revenge. Although it is obviously unpleasant to experience any of these emotions, those two categories are not equivalent: they activate different inferences and responses (Clark, Pataki, & Carver, 1996; Tiedens, 2001).

In the present set of studies and given the above stated hypotheses, we were interested in the possible differential association of evil and suffering and secondary emotions. The former may be said to be provoked by a violent agent, and the latter may be viewed as directed to victims of a violent agent. One would expect that only suffering emotions will be attributed to the in-group but not the crueller or more evil ones when violence is activated. However, following the postulates of infrahumanization theory, all the secondary emotions, as long as they are uniquely human, will be associated faster with the in-group than the out-group, regardless of the valence or the specific meaning of secondary emotions. We will refer to this possibility as a strong version of infrahumanization, while moderations due to the semantic content of the emotions will be called a weak version of the infrahumanization effect.

## Study 1

### Method

**Participants** Seventy-one students from the University of La Laguna (76.52% females) took part in this experiment. They all received academic credits for their cooperation.

### Materials and procedure

Participants were told that they would be doing an experiment on visual memory. The experiment was divided into three tasks. In the first task, participants were asked to pay attention to a series of pictures that they would have to recognize later when they appeared among new pictures. All the images were extracted from the International Affective Picture System (IAPS)

photograph database<sup>1</sup> (Lang, Bradley, & Cuthbert, 2005). A total of eight pictures were shown in each experimental condition, and remained on the screen for one second.<sup>2</sup> The second part was a lexical decision task that was the infrahumanization measure. Finally, participants did a recognition task, in order to maintain coherence with the cover story (participants thought that they were doing a visual memory experiment).

For the first task, participants were divided into three experimental conditions. In the *control* condition, participants were exposed to everyday images showing people performing simple and harmless activities. In the *human violence* condition, participants were shown a series of pictures depicting acts of violence or images related to it (kidnappings, weapons, street gangs, etc.). The main figures in these scenes belonged to different racial groups, but never to Indians, which constituted the target out-group. Finally, in the *animal violence* condition, participants were shown scenes of animal aggression (fights between dogs, lions, sharks, etc.). The purpose of this third experimental condition was to find out whether infrahumanization is only activated by human violence or whether any violence, by animals, for instance, can also have an effect.

Between the photo learning (priming task) and the recognition task, participants had to solve a lexical decision task to establish the infrahumanization measure. Specifically, participants had to decide as quickly as possible whether a series of letters appearing on the screen was a word or a non-word. To do that, they had to press two different keys depending on their decision (word/non-word). The experiment included nine secondary emotions, nine primary emotions and nine filler items (non-emotional words). In order to mask the real purpose of the task, a total of 27 non-words were also included. Those stimuli were meaningless letter strings obtained by scrambling the letters that formed each of the 27 target words.

The words and non-words were presented twice, half of the trials preceded by an in-group prime and the other half preceded by an out-group prime. Overall, a total of 108 trials were presented. Participants viewed, for each

trial, a fixation point (500 ms), a photo of an in-group versus an out-group member (500 ms), a white screen (250 ms), and a series of letters that they had to classify as a word or non-word. Following this sequence, each photo was paired with each word/non-word. No practice trials were included.

The in-group and out-group primes were face stimuli that remained on the screen for 500 milliseconds. The photos depicted male members of the in-group (Canarians) and members of the out-group (habitants of India), without any personalizing features such as hats, glasses or piercings. Participants were asked to pay attention to the photos because they would have to remember them in a subsequent task. A total of 12 in-group photos and 12 out-group ones were presented as prime. For each group, half of the pictures were presented five times, and the rest of the pictures were presented four times, completing the 108 trials for each prime group. Participants were told that they would be exposed to Canarian and Indian faces.

We chose the Indian out-group because a previous study (Delgado et al., 2007) did not show infrahumanization towards this group. Indians are associated with positive stereotypes (hardworking, home-loving, responsible, etc.), and as an out-group they are not particularly relevant for the Canarian in-group (Cortes et al., 2005).

We included three positive secondary emotions (hope, optimism, happiness), three suffering-related secondary emotions (worry, bitterness, sorrow), and three evil secondary emotions (envy, rancor, disdain). In addition, three positive primary emotions (joy, calmness, enthusiasm), three suffering-related primary emotions (fear, discomfort, sadness) and three evil primary emotions (irritation, rage, anger) were also included. A pilot study with 39 participants showed that the emotional terms were associated with suffering or evil. In this pilot study, emotions were rated on a seven-point Likert scale. The terms included in the *suffering* category were more related to the experience of suffering ( $M = 5.47$ ,  $SD = 0.64$ ) than those included in the *evil* category ( $M = 3.93$ ,  $SD = 0.47$ ),  $t(10) = 4.741$ ,  $p = .001$ . The terms

in the *evil* category were more related to acts that involve hurting other people ( $M = 4.80$ ,  $SD = 0.79$ ) than those included in the *suffering* category ( $M = 1.67$ ,  $SD = 0.26$ ),  $t(10) = 9.191$ ,  $p < .001$ . In addition, secondary emotions were perceived as more human than primary ones ( $M_s = 5.35$  for secondary emotions and  $3.39$  for primary emotions, on a seven-point scale),  $t(16) = 6.126$ ,  $p < .001$ . Taking together, primary and secondary emotions did not differ on desirability ( $M_s = 3.31$  for secondary emotions and  $3.37$  for primary emotions, on a seven-point scale),  $t(16) = 0.055$ ,  $p = .957$ .<sup>3</sup>

In order to conceal the real purpose of the study for participants, nine filler words were included (e.g. avenue, rake, curtain).

Finally, the third task was a recognition task, included to conform with the cover story of the experiment. Participants had to decide whether a series of pictures of in-group and out-group members, as well as pictures of neutral, animal or human violence, had already been presented during the experiment. This recognition task allowed us to explain to participants why they had been exposed to in-group and out-group faces in the lexical decision task.

In addition, participants had to assess the levels of anxiety, perceived violence, discomfort, and pleasantness of the pictures showed in the first task of the experiment, by using a 10-point Likert scale.

**Results**

**Emotional reactions towards each experimental condition** The effects of condition on perceived violence, anxiety, uneasiness and pleasantness was tested via a MANOVA, which was

significant,  $F_{(8,132)} = 16.913$ ,  $p < .001$ ;  $\eta^2 = .506$ . Table 1 shows the results for each univariate contrast. As expected, the control condition was perceived as less violent, less uneasy, more pleasant and less anxiogenic than the other two conditions. Importantly, participants rated the *human violence* more violent ( $M = 9.16$ ,  $SD = 1.34$ ) and more uncomfortable ( $M = 6.00$ ,  $SD = 1.98$ ) than the *animal violence* condition ( $M = 7.54$ ,  $SD = 1.68$  for violence, and  $M = 4.71$ ,  $SD = 2.29$  for uneasiness).

**Infrahumanization** Outliers with response latencies faster than 150 ms and slower than 3000 ms, as well as incorrect responses, were excluded from the analyses (5.67%). Reaction times were log-transformed to approximate a normal distribution.<sup>4</sup> In order to ease the interpretation of the results, mean scores were re-transformed and reported in milliseconds.

Response latencies were analyzed in a 3 (Condition: control vs. human violence vs. animal violence)  $\times$  2 (Group: in-group vs. out-group)  $\times$  2 (Emotion: primary emotion vs. secondary emotion)  $\times$  3 (Type of emotion: positive vs. suffering vs. evil) mixed ANOVA. Apart from an Emotion main effect,  $F_{(1,68)} = 6.892$ ,  $p = .01$ ,  $\eta^2 = .09$ , and a Type of emotion main effect,  $F_{(2,67)} = 10.219$ ,  $p < .001$ ,  $\eta^2 = .23$ , the interaction between Emotion and Type of Emotion was significant,  $F_{(2,67)} = 7.192$ ,  $p = .001$ ,  $\eta^2 = .177$ . Simple effects showed that responses for suffering secondary emotions were slower ( $M = 793.14$ ,  $SD = 201.01$ ) than responses for suffering primary emotions ( $M = 749.94$ ,  $SD = 163.02$ ),  $F_{(1,68)} = 9.234$ ,  $p = .003$ ,  $\eta^2 = .120$ , and responses for evil secondary emotions

Table 1. Scores obtained in the photographs' assessment for each experimental condition (Study 1)

	Control (N = 24)	Human violence (N = 25)	Animal violence (N = 22)	F	Sign.	Partial squared eta
	Mean (SD)	Mean (SD)	Mean (SD)			
Anxiety	2.62 <sub>a</sub> (1.47)	4.96 <sub>b</sub> (2.28)	5.54 <sub>b</sub> (1.62)	16.577	<.001	.328
Violence	1.37 <sub>a</sub> (1.09)	9.16 <sub>b</sub> (1.34)	7.54 <sub>b</sub> (1.68)	212.57	<.001	.862
Uneasiness	1.29 <sub>a</sub> (0.86)	6 <sub>b</sub> (1.98)	4.71 <sub>c</sub> (2.29)	44.516	<.001	.567
Pleasantness	6.83 <sub>a</sub> (1.93)	1.8 <sub>b</sub> (1.55)	2.27 <sub>b</sub> (1.39)	68.575	<.001	.669

Note: Means with different letters for each row are significantly different from the rest ( $p < .05$ ).

( $M = 819.75$ ,  $SD = 197.24$ ), were slower than responses for evil primary emotions ( $M = 780.55$ ,  $SD = 124.77$ ),  $F_{(1,68)} = 8.516$ ,  $p = .005$ ,  $\eta^2 = .111$ . There were no significant differences for positive primary and secondary emotions ( $p = .22$ ). The effect of Condition was marginally significant,  $F_{(2,67)} = 2.421$ ,  $p = .09$ ,  $\eta^2 = .066$ , showing that participants tended to be faster at identifying the words in the human violence condition ( $M = 743.23$ ,  $SD = 119.78$ ) than in the control condition ( $M = 829.65$ ,  $SD = 177.22$ ;  $p = .05$ ) and in the animal violence condition ( $M = 817.29$ ,  $SD = 135.72$ ;  $p = .09$ ).

The three-way interaction between Condition, Group and Emotion was marginally significant,  $F_{(2,67)} = 2.595$ ,  $p = .08$ ,  $\eta^2 = .07$ . Given the presence of a marginal main effect of Condition, we proceeded to analyze the effect of Group and Emotion separately for each of three experimental conditions. We did not find any significant effect in the control condition. In the animal violence condition, only the main effect

of Emotion was significant,  $F_{(1,21)} = 9.055$ ,  $p = .007$ ,  $\eta^2 = .301$ , showing that primary emotions were identified faster ( $M = 793.14$ ,  $SD = 189.21$ ) than secondary emotions ( $M = 841.34$ ,  $SD = 211.24$ ). In the human violence condition, as expected, the interaction between Group and Emotion was significant,  $F_{(1,24)} = 8.993$ ,  $p = .006$ ,  $\eta^2 = .273$ . Simple effects showed no significant differences for primary emotions when they were preceded by in-group and out-group faces ( $p > .30$ ). Differences due to group prime emerged only for secondary emotions. Specifically, people took significantly longer to identify secondary emotions when they were preceded by images of the out-group ( $M = 781.33$ ,  $SD = 182.26$ ) than by images of the in-group ( $M = 722.70$ ,  $SD = 109.92$ ),  $F_{(1,24)} = 9.203$ ,  $p = .006$ ,  $\eta^2 = .277$ . This result means that inhumanization was triggered after the exposure to a human violence context, whereas no differences were observed in the control or in the animal violence conditions (see Figure 1). Interestingly,

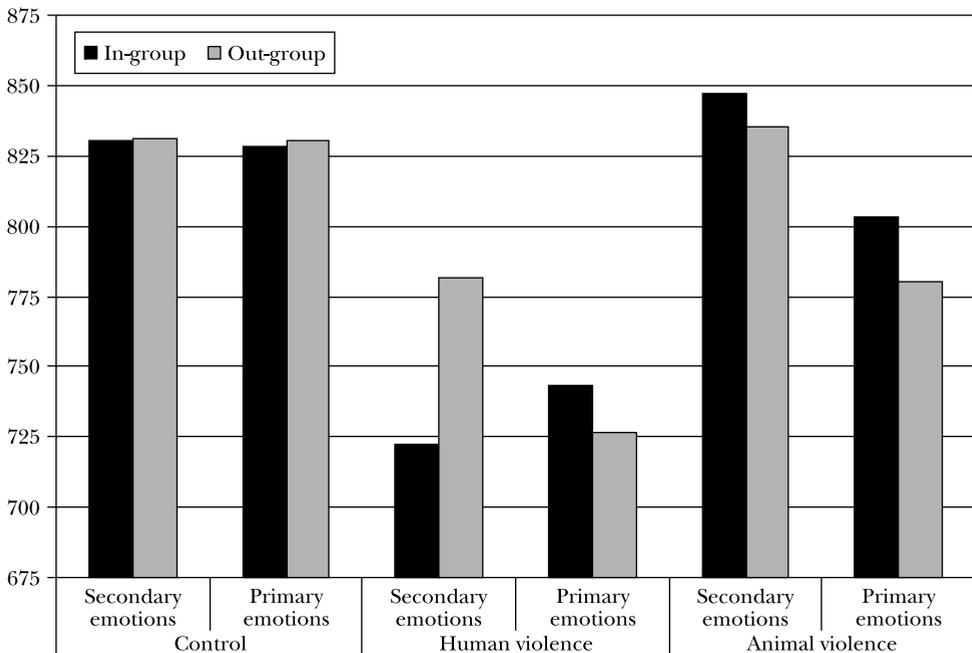


Figure 1. Reaction times for primary and secondary emotions preceded by members of the in-group (Canarians) and the out-group (Indians) in the control ( $N = 24$ ), human violence ( $N = 25$ ) and animal violence ( $N = 22$ ) conditions (Study 1).

and in line with the violence-triggers-threat hypothesis, simple effects analyses of differences in each prime group showed that participants identified primary emotions faster ( $M = 726.33$ ,  $SD = 181.99$ ) than secondary ones ( $M = 781.33$ ,  $SD = 182.26$ ) when they were preceded by out-group faces, whereas there were no differences when primary and secondary emotions were preceded by in-group faces ( $p > .30$ ).

### **Discussion**

The results confirmed our hypothesis that the exposure to human violent acts triggers infrahumanization towards an out-group, even when this out-group is not taking part in these acts of violence. Importantly, in the human violence condition, secondary emotions that often caused violence (e.g. rancor) and that are caused by violence (e.g. sorrow) were equally affected. As such, the present findings confirm a strong version of infrahumanization showing that regardless of the semantics of the emotions taken into consideration, their human value prevailed in causing the effects.

When taking participants' reactions towards primary emotions as a baseline, in particular, the reaction times in the recognition of secondary emotions after the out-group prime slowed down, while the same difference for the in-group was not significant. This pattern supports the violence-triggers-threat hypothesis. Other comparisons would have been informative to establish the nature of the effect; for instance, reaction times for secondary emotions after in-group or out-group primes, across conditions. But as Figure 1 clearly shows, the main effect of condition would make it difficult to interpret such differences.

Importantly, not all violent scenarios were shown to have the same effects on infrahumanization. Indeed, only violent scenes that involved human beings rather than animals meant that secondary emotions were associated less with the out-group. This result suggests that violence, even when it is generic, needs to involve human subjects for it to activate the infrahumanization effect.

### **Study 2**

The previous experiment has shown that the context of human violence is able to activate infrahumanization, even when neither the in-group nor the out-group carry out the violent actions. Nonetheless, the violent scenes that were presented to participants in Study 1 were not only perceived as more violent but also caused more discomfort among participants. Put differently, we cannot completely exclude that exposure to an unpleasant context might be enough to prime infrahumanization. In order to exclude this alternative account of our findings, in Study 2 the violence condition was compared with a condition that should elicit equal or higher levels of discomfort showing pictures of the suffering caused by violence. It is interesting to note that such pictures that mainly showed wounded people might privilege the association of suffering secondary emotions. Even though Study 1 did not show any effect of the semantic content of the emotions (evil vs. suffering vs. positive), introducing a context in which people are suffering versus a context in which they compute evil acts could make an ideal situation to test the strong version of the infrahumanization effect. That is, all secondary emotions will be associated faster with the in-group than the out-group, regardless of the valence or the specific meaning of these emotions.

A second aim of the study consists in replicating our previous findings with a new out-group: the Serbs. Like the Indians, Serbs are not infrahumanized under general conditions since they are not particularly relevant to the Canarian in-group (Cortes et al., 2005; Delgado, Rodríguez-Pérez, Vaes, Leyens, Betancor, 2008).

### **Method**

**Participants** Sixty-five students from the University of La Laguna took part in this experiment (71.95% females). They all received academic credits for their cooperation.

### **Materials and procedure**

As in Study 1, participants were told that they would be doing an experiment on visual memory,

in order to find a cover story for the experiment. The procedure was the same as that of Study 1 with some modifications.

First, participants observed a series of photos that they would have to recognize later. We included three experimental conditions: the *control* condition, in which participants observed photos of people performing daily simple and harmless activities. In this case, images depicting movement were selected. In the *human violence* condition, participants were shown the same pictures as in the previous experiment. Finally, in the *human suffering* condition, participants were shown images of victims: corpses, seriously wounded people, etc. These images were extracted from the IAPS<sup>5</sup> photograph database (Lang et al., 2005). Eight photos were presented in each experimental condition, and remained on the screen for 1000 ms.

The second part of the experiment was a lexical decision task that served as a measure of infrahumanization. In the lexical decision task, we presented the same words and non-words as in Study 1, so that the task was formed by 108 experimental trials: nine primary emotions, nine secondary emotions and nine fillers, plus 27 non-words, presented twice, half of the trials were preceded by an in-group prime and the other half were preceded by an out-group prime.

In this study, the out-group was Serbs. Although this out-group could be linked with the Yugoslavian War and for that reason evoke a negative image, Serbs are not infrahumanized under general conditions since they are not particularly relevant to the Canarian in-group (Cortes et al., 2005; Delgado et al., 2008). In Spain, Serbs are not perceived as a clearly different group from Yugoslavians in general, and Yugoslavians are not a salient out-group that is discriminated or infrahumanized, as was shown in a previous study (Delgado, 2008). Furthermore, participants in the study were born after 1985, so they were likely to be too young to remember much about the Yugoslavian War that is not as visible in the media as other contemporary wars.

In this case, group primes that preceded the words and non-words were in-group names (e.g. Óscar, Sergio, Manuel) or out-group names

(e.g. Vladimir, Slobodan, Darko), instead of in-group and out-group photographs. Participants were told that they would be exposed to Canarian and Serbian names. A total of 18 in-group names and 18 out-group names were presented, each of them for three times. In-group and out-group names were equivalent in length. Participants were instructed to read the names carefully, because they had to identify them in a subsequent task.

Each trial started with a fixation point (500 ms), followed by an in-group versus out-group name (500 ms), after which a white screen (250 ms) was presented, and finally a series of letters that had to be classified as a word or a non-word appeared on the screen.

Finally, as in Study 1, participants were exposed to a recognition task, in which we included in-group and out-group names as well as pictures from the first task. The reason for presenting this memory task was to justify the presentation of the names in the lexical decision task, and the exposure to the pictures in the first task.

After the lexical decision task and the memory task, participants answered several questions about their emotional responses to the pictures. More precisely, they were asked to what extent they had experienced anxiety, unease, sadness, hate, sorrow, alertness, threat and a sense of being in danger, and to what extent they considered the images they had seen as violent and pleasant. They replied using a scale from 1 = totally agree to 10 = totally disagree.

## Results

**Emotional reactions** In order to verify whether the exposure to the photographs of each experimental condition triggered different perceptions of violence in the participants, we conducted a MANOVA with the items about their emotional reactions. The analysis was significant,  $F_{(20,106)} = 14.346, p < .001; \eta^2 = .730$ . Table 2 shows the results for each univariate contrast.

First, we observed that the scores for the control condition were significantly different from those in the human suffering condition for all the items. When the scores obtained in the control condition were compared to those obtained in the human violence condition, we observed that

Table 2. Scores obtained in the photographs' assessment for each experimental condition (Study 2)

	Control (N = 21) Mean (SD)	Human violence (N = 19) Mean (SD)	Human suffering (N = 24) Mean (SD)	F	Sign.	Partial squared eta
Anxiety	2.19 <sub>a</sub> (1.66)	3.63 <sub>a</sub> (2.24)	6.21 <sub>b</sub> (3.12)	15.462	<.000	.336
Violence	1.24 <sub>a</sub> (0.54)	9.63 <sub>b</sub> (1.01)	8.71 <sub>c</sub> (1.78)	277.653	<.000	.901
Uneasiness	1.29 <sub>a</sub> (0.64)	5.16 <sub>b</sub> (2.94)	7.79 <sub>c</sub> (2.48)	47.348	<.000	.608
Pleasantness	7.52 <sub>a</sub> (2.11)	1.21 <sub>b</sub> (0.53)	1.00 <sub>b</sub> (0)	188.683	<.000	.861
Threat	1.33 <sub>a</sub> (0.80)	8.26 <sub>b</sub> (1.45)	6.33 <sub>c</sub> (3.19)	56.208	<.000	.648
Alertness	1.24 <sub>a</sub> (0.62)	4.58 <sub>b</sub> (2.55)	5.21 <sub>b</sub> (3.18)	16.819	<.000	.355
Sadness	1.52 <sub>a</sub> (0.68)	5.53 <sub>b</sub> (2.80)	7.75 <sub>c</sub> (2.64)	43.262	<.000	.587
Hate	1.14 <sub>a</sub> (0.48)	4.84 <sub>b</sub> (3.10)	4.50 <sub>b</sub> (2.89)	14.453	<.000	.322
Danger	1.19 <sub>a</sub> (0.51)	3.26 <sub>b</sub> (2.47)	3.37 <sub>b</sub> (2.24)	8.527	<.001	.218
Sorrow	1.67 <sub>a</sub> (0.79)	7.05 <sub>b</sub> (2.39)	8.33 <sub>c</sub> (2.22)	72.276	<.000	.703

Note: Means with different letters for each row are significantly different from the rest ( $p < .05$ ).

the differences were significant for all the items except anxiety. All in all, participants scored significantly lower in the control condition than in the other two experimental conditions, except for the question on the pleasantness of the pictures, where scores were higher in the control condition than in the other two conditions. As for the human violence and the human suffering conditions, we observed that answers to the questions regarding violence and perceived threat were significantly higher in the human violence condition than those in the human suffering condition. On the contrary, participants gave significantly higher scores to questions on anxiety, unease, sadness and sorrow in the human suffering condition than in the human violence condition.

**Infrahumanization** Incorrect responses as well as participants' extremely fast or slow responses (faster than 150 ms and slower than 3000 ms) were excluded (7.78%). Reaction times were log-transformed for analyses.<sup>6</sup> To ease the understanding of the results, however, mean scores are reported in the original scale, milliseconds.

First, we performed a 3 (Condition: control vs. human violence vs. human suffering) × 2 (Group: in-group vs. out-group) × 2 (Emotion: primary emotion vs. secondary emotion) × 3 (Type of emotion: positive vs. suffering vs. evil) mixed ANOVA. Results revealed a significant main effect

of Group,  $F_{(1,62)} = 4.917, p = .03, \eta^2 = .073$ : overall, participants identified faster words preceded by in-group ( $M = 788.40, SD = 140.67$ ) than by out-group names ( $M = 812.40, SD = 118.32$ ). A main effect of Condition was also significant,  $F_{(2,61)} = 3.566, p = .034, \eta^2 = .103$ , showing that participants were slower at identifying words in the human suffering condition ( $M = 880.07, SD = 214.52$ ) than in the control ( $M = 765.09, SD = 178.07$ ) and human violence condition ( $M = 757.48, SD = 196.23$ ). Also, an Emotion main effect,  $F_{(1,62)} = 8.252, p = .006, \eta^2 = .117$ , a Type of emotion main effect,  $F_{(3,61)} = 3.244, p = .046, \eta^2 = .096$ , and the interaction between Emotion and Type of emotion,  $F_{(2,61)} = 9.636, p < .001, \eta^2 = .240$  were significant: responses for suffering ( $M = 816.89, SD = 233.04$ ) and evil secondary emotions ( $M = 837.15, SD = 173.12$ ) were slower than responses for suffering ( $M = 754.46, SD = 117.38$ ) and evil primary emotions ( $M = 789.97, SD = 164.94$ ),  $F_{(1,62)} = 15.277, p < .001, \eta^2 = .198$  for suffering words and  $F_{(1,62)} = 5.378, p = .024, \eta^2 = .080$  for evil words. For positive primary and secondary emotions, the reverse pattern was marginally significant,  $F_{(1,62)} = 3.432, p = .07, \eta^2 = .052$ ; positive secondary emotions were identified faster ( $M = 788.39, SD = 175.92$ ) than positive primary emotions ( $M = 816.48, SD = 195.01$ ).

Except for the interaction between Emotion and Type of emotion, the rest of effects were qualified by the interaction between Condition,

Group and Emotion, that was statistically significant,  $F_{(2,61)} = 3.606, p = .033, \eta^2 = .104$ . In line with Study 1, we disentangled the effects of this three-way interaction by carrying out separate analyses for each of the experimental conditions.

A 2 (Group: in-group vs. out-group)  $\times$  2 (Emotion: primary emotion vs. secondary emotion) ANOVA was conducted separately for each of the three conditions. Results for the control and for the human suffering condition showed that there were not any significant effects. However, in the human violence condition, the analysis revealed a main effect of Group,  $F_{(1,19)} = 16.805, p = .001, \eta^2 = .469$ : overall, participants were faster for words preceded by in-group ( $M = 734.36, SD = 199.25$ ) than out-group names ( $M = 786.03, SD = 183.90$ ). Also, a main effect of Emotion emerged,  $F_{(1,19)} = 25.253, p < .001, \eta^2 = .571$ ; primary emotions were identified faster ( $M = 735.09, SD = 213.24$ ) than secondary emotions ( $M = 784.46, SD = 162.45$ ). Importantly, and as expected, the main effects

were qualified by the interaction between Group and Emotion, that was significant,  $F_{(1,19)} = 3.7, p = .07, \eta^2 = .163$ . As in Study 1, simple effects showed that the result was due to differences in recognizing secondary emotions. Specifically, people took significantly longer to identify secondary emotions when they were preceded by out-group names ( $M = 828.81, SD = 170.60$ ) than by in-group names ( $M = 742.48, SD = 136.43$ ),  $F_{(1,19)} = 12.284, p = .002, \eta^2 = .393$ . Comparisons between primary and secondary emotions for each prime showed that, whereas there were no differences between primary and secondary emotions preceded by in-group names, participants took longer at identifying secondary emotions ( $M = 828.81, SD = 170.60$ ) than primary emotions ( $M = 746.13, SD = 123.61$ ) when they were preceded by out-group names. Taken together, and replicating the results of Study 1, infrahumanization was triggered after the presentation of scenes of human violence, and not after the presentation of control or human suffering images (see Figure 2).

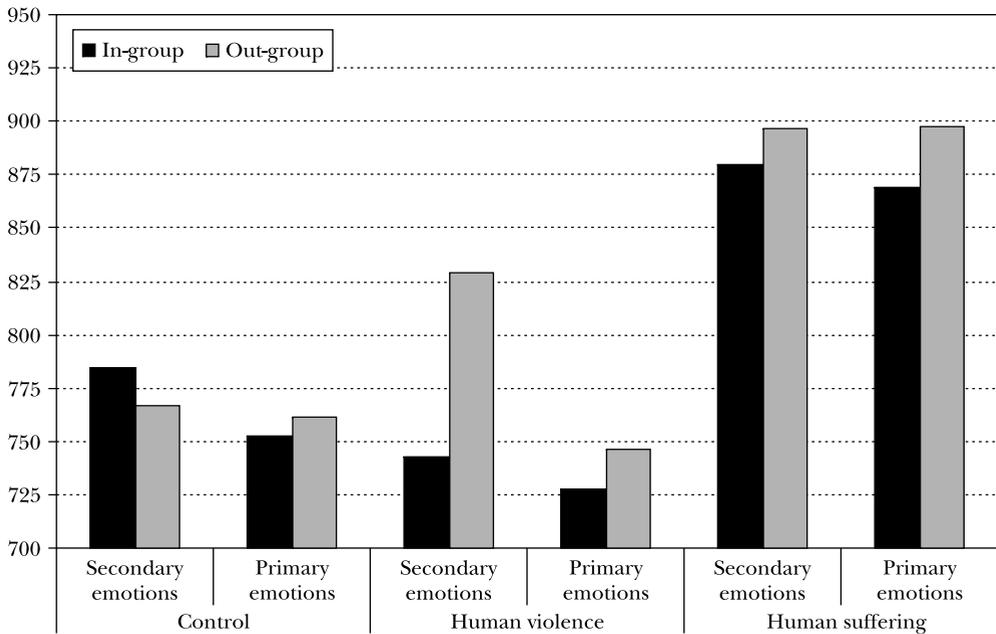


Figure 2. Reaction times for primary and secondary emotions preceded by Canarian names (in-group) and Serbian names (out-group) in the control ( $N = 21$ ), human violence ( $N = 20$ ) and human suffering ( $N = 24$ ) conditions (Study 2).

### Discussion

The present experiment confirms that the exposure to a context of human violence triggers infrahumanization. More precisely, it has been found that exposure to scenes of human violence resulted in a slower recognition of secondary emotions when they are preceded by an out-group name as compared to an in-group name. Since unease was higher in the human suffering as compared to the human violence condition, this effect is unlikely to be due to increase in the participants' levels of unease.

Again, the differential association between secondary emotions and in-group and secondary emotions and out-group was observed regardless of the specific type of emotion (positive, suffering or evil). These results support the strong version of infrahumanization.

As in Study 1, and taking reactions towards primary emotions as a baseline, it was only the recognition of secondary emotions after out-group primes in the human violence condition that was inhibited. These results tend to favor an explanation in terms of the violence-triggers-threat hypothesis.

### General discussion

The first aim of this research was to find out whether exposure to violence could elicit infrahumanization towards an out-group. Results reveal that exposure to human violence *per se* is able to trigger infrahumanization, even if neither the in-group nor the out-group are involved in the violence or its victims. This effect is not observed when perceivers are shown non-human violence, and it does not seem to be the consequence of their feelings of discomfort.

Another aim was to distinguish between different types of secondary emotions, given their relation to violence. Specifically, we included positive, suffering and evil-related secondary emotions. This typology allowed us to test whether violence influences infrahumanization with one or all kinds of secondary emotions, that which we called the weak or strong versions of infrahumanization. The experiments show that the differential association between

secondary emotions and in-group and secondary emotions and out-group exists, regardless of the specific secondary emotion type presented. We observed the same effect with positive as well as with suffering and evil secondary emotions. Even with extremely negative secondary emotions, such as those related to evilness, individuals showed a stronger association to their own group instead of to the out-group.

Why is infrahumanization triggered after exposure to violence? Two possibilities were considered. One assumes that violent behaviors activate a chain of nodes associated with those behaviors (Berkowitz, 1984, 1986; Berkowitz & Rogers, 1986; Bushman, 1998; Josephson, 1987). These nodes facilitate a more negative and threatening perception of others, since aggression-related thoughts are temporarily more accessible (Anderson et al., 2003; Berkowitz, 1984; Josephson, 1987). Recent research has shown that generic violent primes are more easily linked to the out-group, even when this out-group is not stereotyped as aggressive or hostile (Otten & Stapel, 2007). As a consequence, our results might be indicating that violence changed the perception of the out-group, making them more threatening and generating a clear intergroup differentiation in terms of perceived humanity. From this perspective, our findings show that infrahumanization can be the consequence of violence, and not only the cause. Viewing violence can lead to infrahumanizing those that we evaluate subsequently. Castano and Giner-Sorolla (2006) found that infrahumanization towards an out-group appears when the in-group is confronted with violence perpetrated by one's in-group towards the out-group. The present research goes a step further and shows that a general context of violence can make people see the out-group as less human than the in-group, even when both groups are not involved in the violent scenes.

No evidence was found for a second explanation that highlighted the link between violence and morality concerns. Recent research (Leach et al., 2007) has shown the importance of morality as an in-group characteristic. Seeing violence done by other persons could increase

the willingness to dissociate the in-group from these immoral acts, associating it more with human-related emotions. Morality is a uniquely human characteristic (Haslam, 2006; Leyens et al., 2000) and secondary emotions are also seen as more moral than primary ones (Demoulin, Leyens, et al., 2004). In order to confirm this line of thought, it was surmised that in particular the recognition of secondary emotions after the in-group prime should have been facilitated. In both studies, however, no differences were found between primary and secondary emotions for the in-group. Instead, reactions towards secondary emotions after an out-group prime were significantly inhibited, compared to the recognition of primary emotions. However, the present set of studies cannot conclusively show which processes are driving the effect of violence on infrahumanization. Even though our results seem to favor an explanation in terms of the violence-triggers-threat hypothesis, future research is needed that directly measures changes in the perception of the out-group and the in-group after a generic violence prime that can be linked with the infrahumanization effect. Because of the main effect of condition, we felt that comparisons across conditions were not appropriate. This limits our ability to draw strong conclusions about the specific nature of the effect, and it thus remains possible that hyper-humanization of the in-group occurs when individuals are primed with human violence.

All in all, the results of this research highlight that violent contexts are able to trigger infrahumanization. Therefore, infrahumanization appears to be malleable and susceptible to contextual information at the moment of intergroup assessment. As is the case with other kinds of implicit attitudes (Blair, 2002; Wittenbrink, Judd, & Park, 2001), infrahumanization is a contextually dependent bias, which can be activated or inhibited depending on the elements surrounding the assessment situation. Moreover, the present data clearly show that seeing violence not only makes people more violent, but also triggers infrahuman perceptions that are likely to facilitate it.

## Notes

1. The following photographs were presented in Study 1: 2515, 2037, 2038, 2102, 2594, 5410, 2745, 7550 (control condition); 2683, 6211, 6312, 6550, 6836, 9425, 6245, 6571 (human violence condition); 1300, 1310, 1120, 1301, 1321, 1525, 1930, 1051 (animal violence condition).
2. All the pictures that were presented in both studies are available upon request to the first author.
3. The level of humanity of each type of emotions was also checked. Specifically, suffering and evil primary emotions were perceived with similar levels of humanness ( $M = 3.03$  and  $3.61$ , respectively),  $t(4) = 1.191$ ,  $p = .300$ , as well as suffering and evil secondary emotions ( $M_s = 5.34$  and  $5.19$ , respectively),  $t(4) = 0.749$ ,  $p = .496$ ; suffering and positive primary emotions ( $M_s = 3.03$  and  $3.53$ , respectively),  $t(4) = 1.307$ ,  $p = .261$ ; suffering and positive secondary emotions ( $M_s = 5.34$  and  $5.52$ , respectively),  $t(4) = 0.215$ ,  $p = .841$ ; evil and positive primary emotions ( $M_s = 3.61$  and  $3.53$ , respectively),  $t(4) = 0.141$ ,  $p = .894$ ; and evil and positive secondary emotions ( $M_s = 5.19$  and  $5.52$ , respectively),  $t(4) = 0.393$ ,  $p = .715$ .
4. In order to verify whether our data effectively had a normal distribution after the log-transformations, we calculated the Kolmogorov-Smirnov Z for each of the primary and secondary emotions, and for each of the primes (in-group vs. out-group exemplars) separately. In Study 1, 39% of distributions of the reaction times were statistically different from normality, whereas only 2.7% of distributions were different from a normal distribution after the log-transformations.
5. In Study 2, the following photographs were presented: 2515, 7506, 8467, 2605, 2530, 2579, 2389, 8496 (control condition), and 3120, 3130, 3010, 3015, 3016, 3030, 3550, 3017 (human suffering condition). The human violence condition included the same pictures as in Study 1.
6. We calculated the Kolmogorov-Smirnov Z for each of the primary and secondary emotions, and for each of the primes (in-group vs. out-group exemplars) separately. In Study 2, distributions improved from 36.1% that differed statistically from normality to 2.7% after log-transformations.

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## References

- Anderson, C. A., Berkowitz, L., Donnerstein, E., Huesmann, L. R., Johnson, J., Linz, D., Malamuth, N., & Wartella, E. (2003). The influence of media violence on youth. *Psychological Science in the Public Interest, 4*, 81–110.
- Bandura, A. (1983). Psychological mechanisms of aggression. In R. G. Geen & C. I. Donnerstein (Eds.), *Aggression: Theoretical and empirical reviews*. Vol. 1: *Theoretical and methodological issues* (pp. 1–40). New York: Academic Press.
- Bandura, A. (1990). Selective activation and disengagement of moral control. *Journal of Social Issues, 46*, 27–46.
- Bargh, J. A., Chen, M., & Burrows, L. (1996). Automaticity of social behavior: Direct effects of trait construct and stereotype activation on action. *Journal of Personality and Social Psychology, 71*, 230–244.
- Bargh, J. A., & Pietromonaco, P. (1982). Automatic information processing and social perception: The influence of trait information presented outside of conscious awareness on impression formation. *Journal of Personality and Social Psychology, 43*, 437–449.
- Bar-Tal, D. (1990). Causes and consequences of delegitimization: Models of conflict and ethnocentrism. *Journal of Social Issues, 46*, 65–81.
- Berkowitz, L. (1973). Words and symbols as stimuli to aggressive responses. In J. Knutson (Ed.), *Control of aggression: Implications from basic research* (pp. 113–143). Chicago: Aldine.
- Berkowitz, L. (1984). Some effects of thoughts on anti and prosocial influences of media events: A cognitive-neoassociation analysis. *Psychological Bulletin, 95*, 410–427.
- Berkowitz, L. (1986). Situational influences on reactions to observed violence. *Journal of Social Issues, 42*, 93–106.
- Berkowitz, L., & LePage, A. (1967). Weapons as aggression-eliciting stimuli. *Journal of Personality and Social Psychology, 7*, 202–207.
- Berkowitz, L., & Rogers, K. (1986). A priming effect analysis of media influences. In J. Bryant & D. Zillmann (Eds.), *Perspectives on media effects* (pp. 57–81). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Blair, I. (2002). The malleability of automatic stereotypes and prejudice. *Personality and Social Psychology Review, 6*, 242–261.
- Bushman, B. J. (1998). Priming effects of media violence on the accessibility of aggressive constructs in memory. *Personality and Social Psychology Bulletin, 24*, 537–545.
- Castano, E. (2008). On the perils of glorifying the in-group: Intergroup violence, in-group glorification, and moral disengagement. *Social and Personality Psychology Compass, 1*, 154–170.
- Castano, E., & Giner-Sorolla, R. (2006). Not quite human: Infrahumanization in response to collective responsibility for intergroup killing. *Journal of Personality and Social Psychology, 90*, 804–818.
- Clark, M. S., Pataki, S. P., & Carver, V. (1996). Some thoughts and findings on self-presentation of emotions in relationships. In G. J. O. Fletcher & J. Fitness (Eds.), *Knowledge structures in close relationships: A social psychological approach* (pp. 247–274). Mahwah, NJ: Erlbaum.
- Cortes, B. (2005). Looking for conditions leading to infrahumanization. Doctoral thesis, Université Catholique de Louvain. Lovain-la-Neuve, Belgium.
- Cortes, B., Demoulin, S., Viki, T., Rodríguez-Torres, R., Rodríguez-Pérez, A., & Leyens, J-Ph. (2005). Infrahumanization or familiarity? Attribution of uniquely human emotions to the self, the ingroup and the outgroup. *Personality and Social Psychology Bulletin, 31*, 243–253.
- Delgado, N. (2008). Contextual variations of infrahumanization. Doctoral thesis, University de la Laguna Tenerife, Spain.
- Delgado, N., Rodríguez-Pérez, A., Leyens, J-Ph., Vaes, J., Betancor, V., & Rodríguez-Torres, R. (2007). Not all outgroups are equally human: The role of similarity, friendship, knowledge and status. Unpublished manuscript.
- Delgado, N., Rodríguez-Pérez, A., Vaes, J., Leyens, J-Ph., & Betancor, V. (2008). Contextual variations of infrahumanization: The role of physical context and territoriality. Unpublished manuscript, University de la Laguna Tenerife, Spain.
- Demoulin, S., Leyens, J-Ph., Paladino, M. P., Rodríguez-Torres, R., Rodríguez-Pérez, A., & Dovidio, J. F. (2004). Dimensions of 'uniquely' and 'non-uniquely' emotions. *Cognition and Emotion, 18*, 71–96.

- Demoulin, S., Rodríguez-Torres, R., Rodríguez-Pérez, A., Vaes, J., Paladino, M. P., Gaunt, R., Cortes, B. P., & Leyens, J-Ph. (2004). Emotional prejudice can lead to infrahumanization. In W. Stroebe & M. Hewstone, *European Review of Social Psychology* (Vol. 15). Hove: Psychology Press.
- Harris, L. T., & Fiske, S. T. (2006). Dehumanizing the lowest of the low: Neuroimaging responses to extreme out-groups. *Psychological Science*, *17*, 847–853.
- Haslam, N. (2006). Dehumanization: An integrative review. *Personality and Social Psychology Review*, *10*, 252–264.
- Josephson, W. L. (1987). Television violence and children's aggression: Testing the priming, social script, and disinhibition predictions. *Journal of Personality and Social Psychology*, *53*, 882–890.
- Kelman, H. C. (1973). Violence without moral restraint: Reflections on the dehumanization of victims and victimizers. *Journal of Social Issues*, *29*, 25–61.
- Lang, P. J., Bradley, M. M., & Cuthbert, B. N. (2005). *International Affective Picture System (IAPS): Digitized photographs, instruction manual, and affective ratings*. Technical Reports, A-6. Gainesville, FL: University of Florida.
- Leach, C. W., Ellemers, N., & Barreto, M. (2007). Group virtue: the importance of morality (vs. competence and sociability) in the positive evaluation of in-groups. *Journal of Personality and Social Psychology*, *93*, 234–249.
- Leyens, J-Ph., Demoulin, S., Vaes, J., Gaunt, R., & Paladino, M. P. (2007). Infrahumanization: The wall of group differences. *Social Issues and Policy Review*, *1*, 139–172.
- Leyens, J-Ph., Paladino, M. P., Rodríguez-Torres, R., Vaes, J., Demoulin, S., Rodríguez-Pérez, A., & Gaunt, R. (2000). The emotional side of prejudice: The role of secondary emotions. *Personality and Social Psychology Review*, *4*, 186–197.
- Leyens, J-Ph., & Parke, R. D. (1975). Aggressive slides can induce a weapons effect. *European Journal of Social Psychology*, *5*, 229–236.
- Leyens, J-Ph., Rodríguez-Pérez, A., Rodríguez-Torres, R., Gaunt, R., Paladino, M. P., Vaes, J., & Demoulin, S. (2001). Psychological essentialism and the differential attribution of uniquely human emotions to ingroups and outgroups. *European Journal of Social Psychology*, *31*, 395–411.
- Opatow, S. (1990). Moral exclusion and injustice: An introduction. *Journal of Social Issues*, *46*, 173–182.
- Otten, S., & Stapel, D. A. (2007). Who is this Donald? How social categorization affects aggression-priming effects. *European Journal of Social Psychology*, *37*, 1000–1015.
- Srull, T., & Wyer, R. S. (1979). The role of category accessibility in the interpretation about persons: Some determinants and implications. *Journal of Personality and Social Psychology*, *37*, 1660–1672.
- Tiedens, L. Z. (2001). Anger and advancement versus sadness and subjugation: The effect of negative emotion expression on social status conferral. *Journal of Personality and Social Psychology*, *80*, 86–94.
- Vaes, J., Paladino, M. P., Castelli, L., Leyens, J-Ph., & Giovanazzi, A. (2003). On the behavioral consequences of infrahumanization: The implicit role of uniquely human emotions in intergroup relations. *Journal of Personality and Social Psychology*, *85*, 1016–1034.
- Viki, G. T., Winchester, L., Titshall, L., Chisango, T., Pina, A., & Russell, R. (2006). Beyond secondary emotions: The infrahumanization of out-groups using words. *Social Cognition*, *24*, 753–775.
- Wittenbrink, B., Judd, C. M., & Park, B. (2001). Spontaneous prejudice in context: Variability in automatically activated attitudes. *Journal of Personality and Social Psychology*, *81*, 815–827.

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